(B) AMENDMENTS TO THE CLAIMS

1. (Currently amended): A method for wavelet-based seismic amplitude inversion, comprising:

selecting a seismic data set comprising a plurality of time samples;

selecting a plurality of time windows in the seismic data set; and

determining a ~~reflectivity~~ seismic amplitude for each time window, using time samples within the time window.

2. (Original): The method of claim 1, wherein the step of selecting a plurality of time windows comprises:

selecting a plurality of time samples in the seismic data set; and

selecting a time window in the seismic data set around each time sample.

3. (Currently amended): The method of claim 1, wherein the step of determining a ~~reflectivity~~ seismic amplitude comprises:

selecting a reference time sample in the time window; and

determining a ~~reflectivity~~ seismic amplitude for the reference time sample, using time samples within the time window.

4. (Currently amended): The method of claim 3, wherein the step of determining a ~~reflectivity~~ seismic amplitude comprises:

determining zero-offset ~~reflectivities~~ seismic amplitudes at all time samples in the time window;

selecting a sequence of time samples in the time window;

performing the following steps for each of the sequence of time samples:

calculating a ratio of zero-offset ~~reflectivities~~ seismic amplitudes at the reference time sample and the selected time sample; and

scaling the selected time sample by the ratio of zero-offset ~~reflectivities~~ seismic amplitudes; and

calculating a ~~reflectivity~~ seismic amplitude for the time window, using the scaled time samples.

5. (Currently amended): The method of claim 4, further comprising:

selecting a scaling up rejection factor;

selecting a scaling down rejection factor;

rejecting time samples that have a ratio of zero-offset ~~reflectivities~~ seismic amplitudes greater than the scaling up rejection factor; and

rejecting time samples that have a ratio of zero-offset ~~reflectivities~~ seismic amplitudes less than the scaling down rejection factor.

6. (Original): The method of claim 4, further comprising:

calculating a variance for the time window, using the scaled time samples.

7. (Currently amended): The method of claim 3, wherein the step of determining a ~~reflectivity~~ seismic amplitude comprises:

determining zero-offset ~~reflectivities~~ seismic amplitudes at all time samples in the time window;

selecting a sequence of time samples in the time window;

performing the following steps for each of the sequence of time samples:

calculating a ratio of zero-offset ~~reflectivities~~ seismic amplitudes at the reference time sample and the selected time sample; and

calculating a reflectivity curve for the time sample; and

scaling the time sample to the reflectivity curve by the ratio of zero-offset ~~reflectivities~~ seismic amplitudes; and

calculating a ~~reflectivity~~ seismic amplitude for the time window, using the scaled time samples.

8. (Currently amended): The method of claim 7, further comprising:

selecting a scaling up rejection factor;

selecting a scaling down rejection factor;

rejecting time samples that have a ratio of zero-offset ~~reflectivities~~ seismic amplitudes greater than the scaling up rejection factor; and

rejecting time samples that have a ratio of zero-offset ~~reflectivities~~ seismic amplitudes less than the scaling down rejection factor.

9. (Original): The method of claim 7, further comprising:

calculating a variance for the time window.

10. (Currently amended): The method of claim 3, wherein the step of determining a ~~reflectivity~~ seismic amplitude comprises:

determining zero-offset ~~reflectivities~~ seismic amplitudes at all time samples in the time window;

selecting a sequence of time samples in the time window;

performing the following steps for each of the sequence of time samples:

calculating a ratio of zero-offset ~~reflectivities~~ seismic amplitudes at the reference time sample and the selected time sample; and

calculating a parameterized reflectivity curve for the time sample; and

scaling the reflectivity curve parameters by the ratio of zero-offset ~~reflectivities~~ seismic amplitudes; and

calculating a ~~reflectivity~~ seismic amplitude for the time window, using the scaled parameterized reflectivity curves.

11. (Currently amended): The method of claim 10, further comprising:

selecting a scaling up rejection factor;

selecting a scaling down rejection factor;

rejecting time samples that have a ratio of zero-offset ~~reflectivities~~ seismic amplitudes greater than the scaling up rejection factor; and

rejecting time samples that have a ratio of zero-offset ~~reflectivities~~ seismic amplitudes less than the scaling down rejection factor.

12. (Original): The method of claim 10, further comprising:

calculating a variance for the time window.

13. (New): The method of claim 1, further comprising:

determining amplitude variation with incidence angle for the seismic data set from the determined seismic amplitudes for each time window.

14. (New): The method of claim 1, further comprising:

determining amplitude variation with offset for the seismic data set from the determined seismic amplitudes for each time window.